

## Engineering verification

### Engineering verification

Crondall Energy's technical experts provide a third party engineering verification service for FPS and subsea projects to provide assurance that critical engineering has been completed at an appropriate level and minimises associated risks.

### Reputation

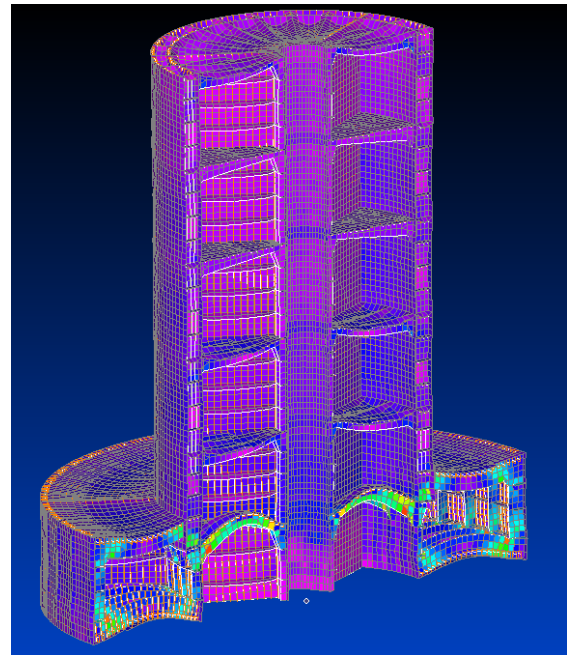
Crondall Energy's engineers have an international reputation for engineering verification based on:

- Decades of analysis experience with practical and theoretical provenance;
- Providing design guidance in areas not addressed by existing design codes;
- Initiating and leading Joint Industry Projects;
- Publication of technical papers;
- Crondall Energy's continuing development of innovative software and design methods to simplify the design process and reduce design complexity.

### Track record

Verification services delivered to date include:

- Subsea and pipeline design. Crondall Energy offers recognised expertise in High-Pressure High Temperature (HPHT) and deepwater pipeline design challenges, including Finite Element Analysis (FEA) verification;
- Flow Assurance and system operability assessments;
- Vessel structure design and repair assessments including FEA verification and fatigue analysis;
- Third party FPS motions analyses;
- Independent damage stability assessment of a novel FPS design.



### Case study

Crondall Energy supported the procurement of an FPSO offloading reel package through completing various engineering verification activities on behalf of the client to confirm that the package was fit for purpose. These included:

Fatigue assessment of the end fitting.

- Crondall Energy completed analysis to confirm the fatigue assessments carried out by the contractor were acceptable.

Verification of the support structural scantlings.

- Crondall Energy generated an independent finite element model of the offloading reel structure to within accepted tolerances, defined the loads to meet class requirements and verified that the scantlings defined by the contractor were acceptable and that the reel structure was fit for purpose.